

Patent Claims

1. Method for the conversion of a cytosine base in a nucleic acid to an uracil base comprising the steps of
  - a) providing a solution that contains a nucleic acid,
  - b) providing guanidinium hydrogen sulfite and preparing a solution comprising guanidinium and sulfite ions,
  - c) mixing the solutions from step a) and b)
  - d) incubating the solution obtained in step c) containing the nucleic acid and guanidinium and sulfite ions whereby the nucleic acid is deaminated,
  - e) incubating the deaminated nucleic acid under alkaline conditions whereby the deaminated nucleic acid is desulfonated,
  - f) isolating the deaminated nucleic acid.
- 15 2. The method according to claim 1, characterized in that the concentration of guanidinium ions and sulfite ions is 0.1 to 8 M, preferably 2 to 8 M.
3. The method according to any of the claims 1 to 2, characterized in that the pH of the solutions in step b) and c) is in the acidic range, preferably between 4.5 to 6.5.
- 20 4. The method according to any of the claims 1 to 3, characterized in that the incubation temperature in step d) and e) is between 0 °C to 90 °C, preferably between 18 °C to 90 °C.
5. The method according to any of the claims 1 to 4, characterized in that the incubation time in step d) is between 30 min to 48 hours, preferably 24 hours.
- 25 6. The method according to any of the claims 1 to 5, characterized in that the step e) is performed by adding an alkaline solution or buffer, preferably a solution containing a hydroxide, preferably sodium hydroxide, or a solution containing ethanol, sodium chloride and sodium hydroxide, preferably a solution containing 38% (volume/volume) ethanol, 100 mM NaCl, 200 mM NaOH.

7. The method according to any of the claims 1 to 6, characterized in that the incubation temperature in step e) is between 0 °C to 90 °C, preferably between 18 °C to 90 °C.
- 5 8. The method according to any of the claims 1 to 7, characterized in that the incubation time in step e) is between 5 min to 60 min.
9. Use of guanidinium hydrogen sulfite for chemically modifying a nucleic acid.
10. Use according to claim 9 wherein a cytosine base in a nucleic acid is converted to an uracil base.
- 10 11. Use of guanidinium hydrogen sulfite to prepare a solution comprising guanidinium and sulfite ions.
12. Use according to claim 1 wherein the solution is used for converting a cytosine base in a nucleic acid to an uracil base.
13. A kit containing guanidinium hydrogen sulfite.
- 15 14. Use of the kit according to claim 13 for a reaction wherein a cytosine base in a nucleic acid is converted to an uracil base in the presence of bisulfite ions.